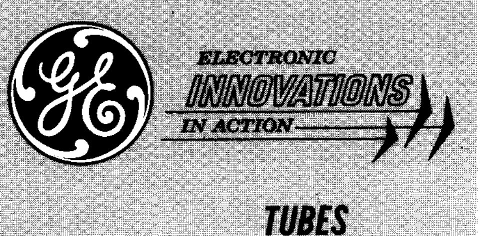


PRODUCT INFORMATION

6Z10

Compactron Pentode — Gated-Beam Discriminator

The 6Z10 is a compactron containing a gated-beam discriminator and a beam pentode. The gated-beam discriminator is suitable for FM and TV limiter and discriminator applications, and the beam pentode for audio power output service.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3±0.6	Volts
Heater Current‡	0.95	Amperes

Direct Interelectrode Capacitances§

Gated-Beam Discriminator Section

Grid-Number 1 to Grid-Number 3	0.009	pf
Grid-Number 1 to All	4.4	pf
Grid-Number 3 to All	3.2	pf

Pentode Section

Grid-Number 1 to Plate	0.22	pf
Input	11	pf
Output	7.5	pf

MECHANICAL

Operating Position - Any
Envelope - T-9, Glass
Base - E12-70, Button 12-Pin
Outline Drawing - EIA 9-58

Maximum Diameter	1.188	Inches
Minimum Diameter	1.062	Inches
Maximum Over-all Length	2.375	Inches
Maximum Seated Height	2.000	Inches
Minimum Seated Height	1.750	Inches

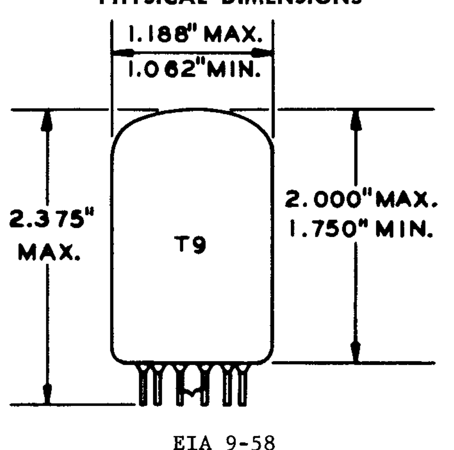
MAXIMUM RATINGS

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

PHYSICAL DIMENSIONS

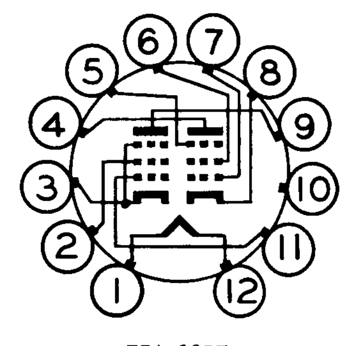


EIA 9-58

TERMINAL CONNECTIONS

Pin 1 - Heater
Pin 2 - Pentode Grid Number 2 (Screen)
Pin 3 - Pentode Cathode and Beam Plates
Pin 4 - Gated-Beam Discriminator Plate
Pin 5 - Gated-Beam Discriminator Grid Number 3 (Quadrature)
Pin 6 - Gated-Beam Discriminator Grid Number 2 (Accelerator)
Pin 7 - Gated-Beam Discriminator Grid Number 1
Pin 8 - Gated-Beam Discriminator Cathode and Internal Shields
Pin 9 - Pentode Plate
Pin 10 - No Connection
Pin 11 - Pentode Grid Number 1
Pin 12 - Heater

BASING DIAGRAM



EIA 12BT



MAXIMUM RATINGS (Cont'd)

DESIGN-MAXIMUM VALUES

Gated-Beam Discriminator Section

Plate-Supply Voltage	330	Volts
Accelerator-Supply Voltage	330	Volts
Peak Positive Grid-Number 1 Voltage	60	Volts
DC Cathode Current	13	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts

Pentode Section

Plate Voltage	275	Volts
Screen Voltage	275	Volts
Plate Dissipation	10	Watts
Screen Dissipation	2.0	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias	0.25	Megohms
With Cathode Bias	0.5	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Gated-Beam Discriminator Section

Plate Voltage	135	135	135	Volts
Accelerator Voltage	75	---	---	Volts
Accelerator-Supply Voltage	---	280	280	Volts
Accelerator Resistor	---	33000	33000	Ohms
Grid-Number 1 Voltage	0	0	0	Volts
Grid-Number 3 Voltage	+4.0	+4.0	0	Volts
Plate Current	---	5.0	---	Milliamperes
Accelerator Current	4.5	---	---	Milliamperes
Grid-Number 1 Transconductance	---	---	360	Micromhos
Grid-Number 3 Transconductance	---	---	700	Micromhos
Grid-Number 1 Voltage, approximate				
Ib = 20 Microamperes	---	---	-4	Volts
Grid-Number 3 Voltage, approximate				
Ib = 20 Microamperes	---	---	-4	Volts

CLASS A_1 AMPLIFIER

Pentode Section

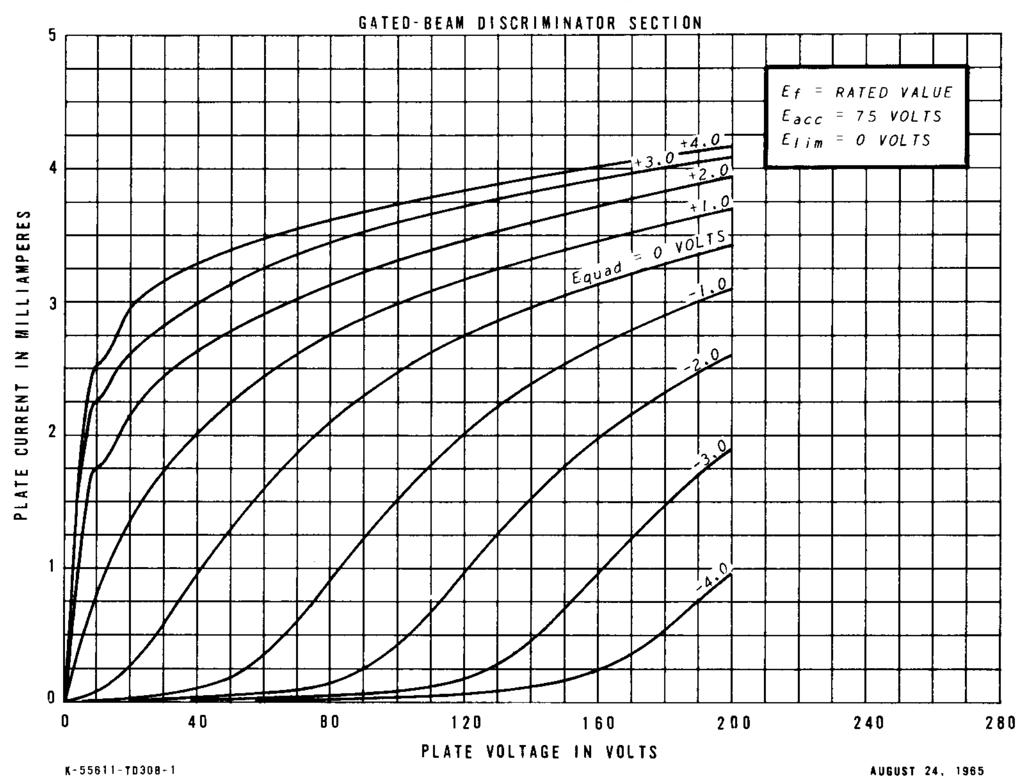
Plate Voltage	250	Volts
Screen Voltage	250	Volts
Grid-Number 1 Voltage	-8.0	Volts
Peak AF Grid-Number 1 Voltage	8.0	Volts
Plate Resistance, approximate	100000	Ohms
Transconductance	6500	Micromhos
Zero-Signal Plate Current	35	Milliamperes
Maximum-Signal Plate Current	39	Milliamperes
Zero-Signal Screen Current	3.0	Milliamperes
Maximum-Signal Screen Current	13	Milliamperes
Load Resistance	5000	Ohms
Total Harmonic Distortion, approximate	8.5	Percent
Maximum-Signal Power Output	4.2	Watts

NOTES

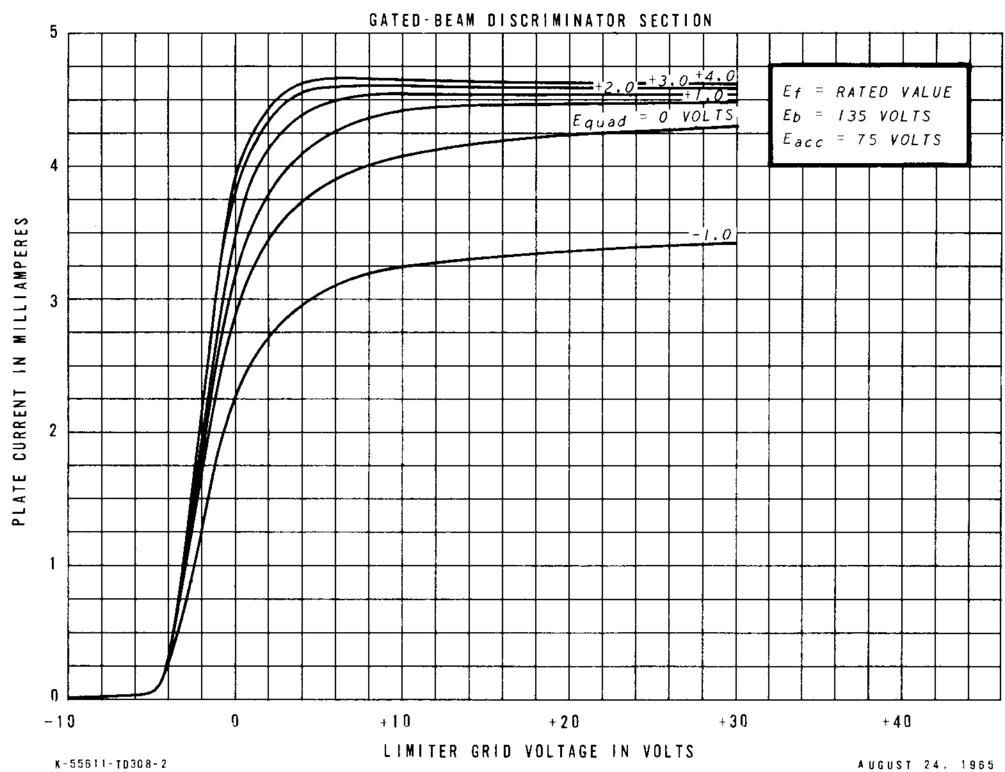
* The equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance.

‡ Heater current of a bogey tube at Ef = 6.3 volts.

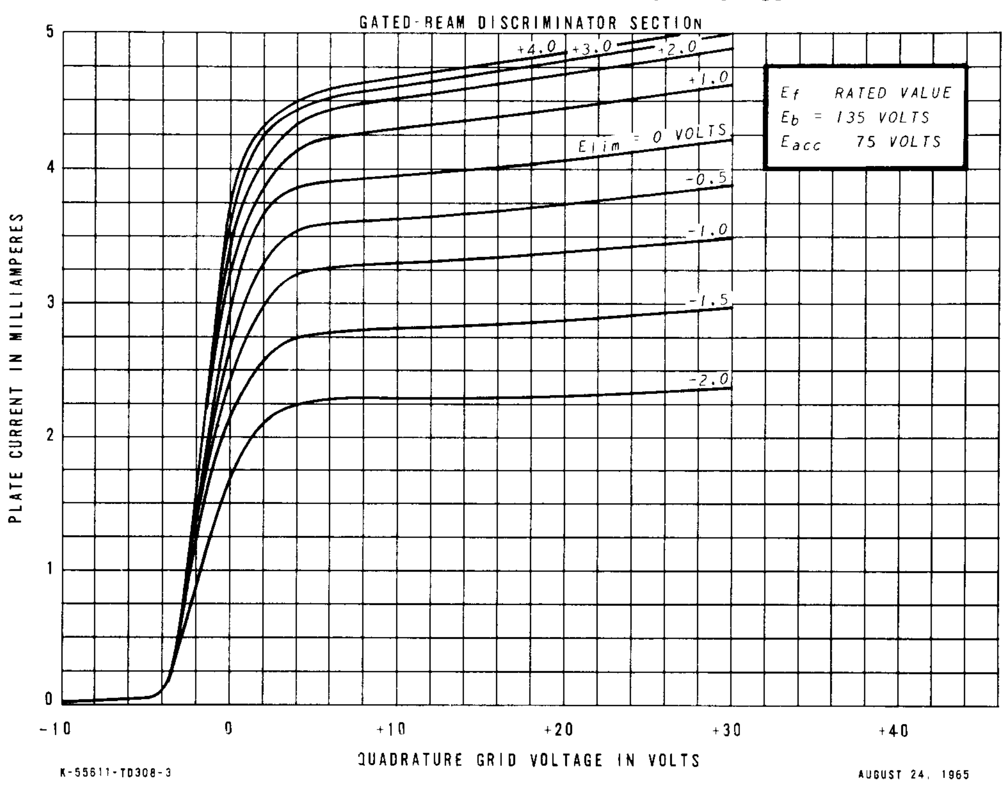
§ Without external shield.



AVERAGE TRANSFER CHARACTERISTICS

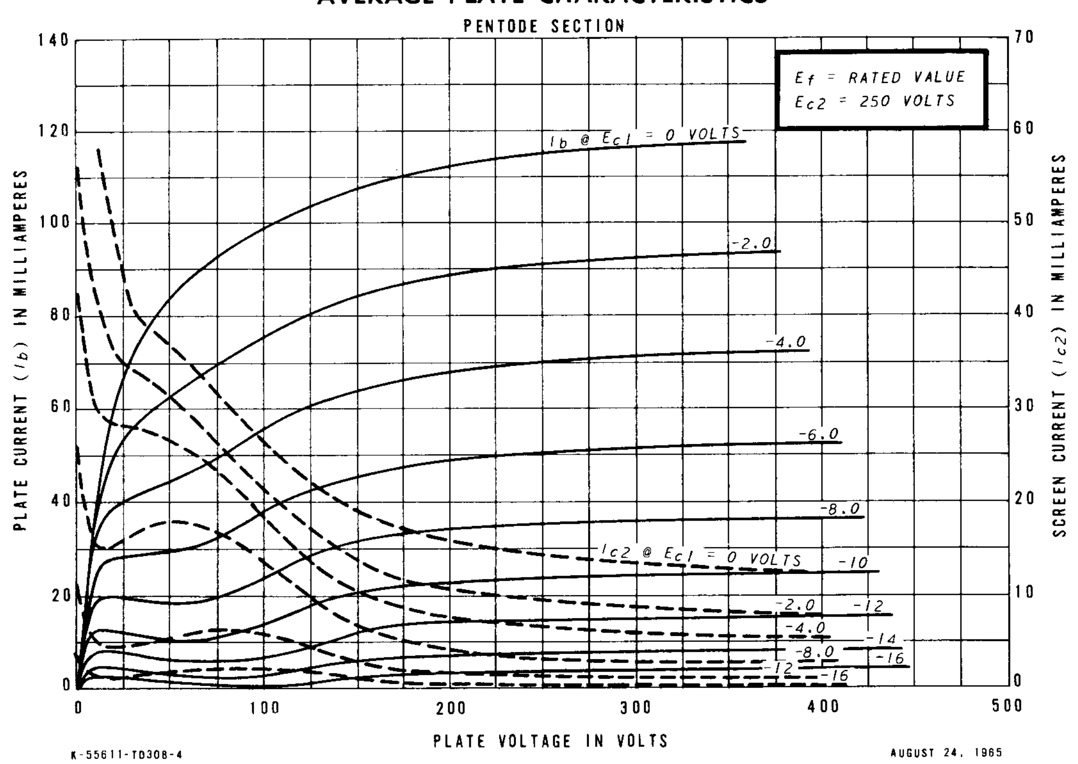


AVERAGE TRANSFER CHARACTERISTICS



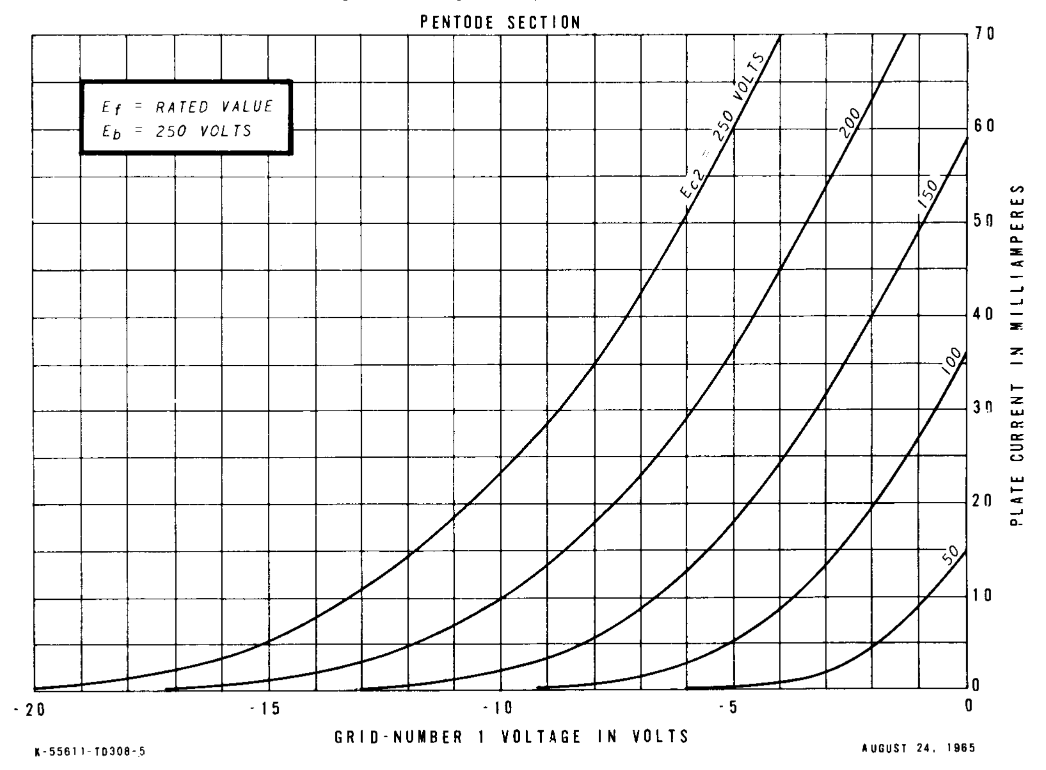
AVERAGE PLATE CHARACTERISTICS

PENTODE SECTION

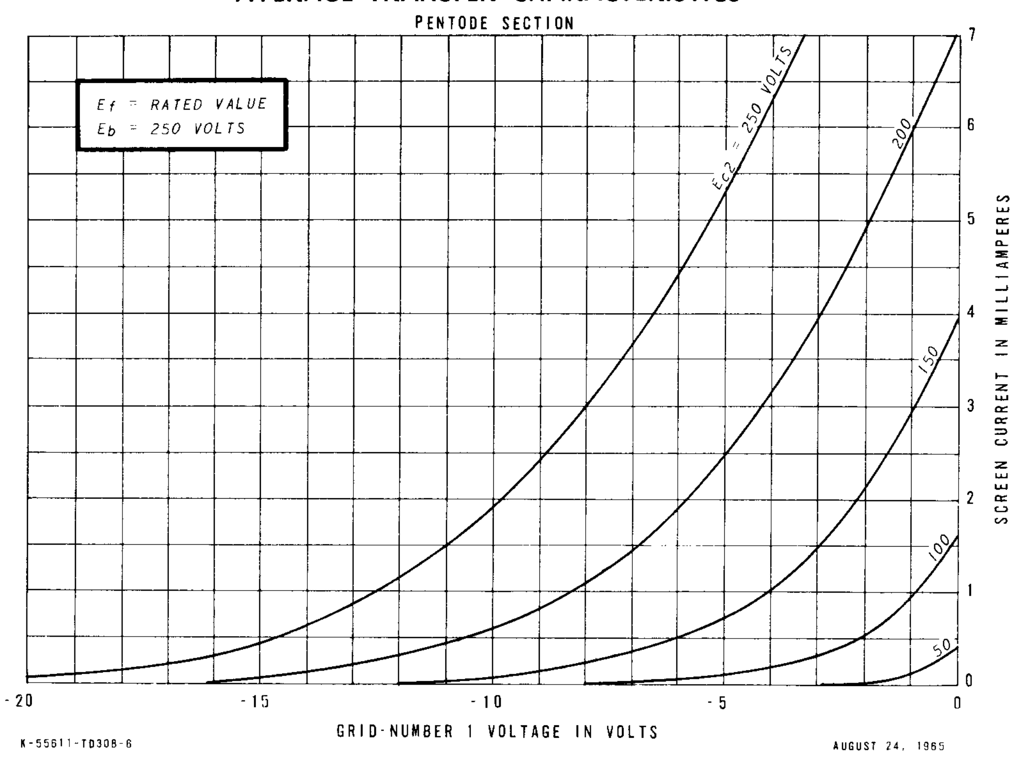


AVERAGE TRANSFER CHARACTERISTICS

PENTODE SECTION



AVERAGE TRANSFER CHARACTERISTICS



OPERATION CHARACTERISTICS

